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- 3- Any LEC that might choose to implement the long-term dialing procedures (that is, 1+ for 10-digit only) prior to implementation of interchangeable codes is encouraged to do so. The intent is not to imply that the recommended 1+ procedures should be deliberately delayed until interchangeable codes are implemented. There would seem, however, to be a significant advantage in having the long-term dialing procedures running smoothly prior to a changeover to interchangeable codes.
  4. Any LEC that now uses 1 + 10-digit dialing, with or without 1 + 7-digit dialing, should not revert to 10-digit dialing even if equipment changes (for example, elimination of SXS equipment) would otherwise allow them to do so. Movement in the future is in the direction of 1 + 10-digit to be dialable everywhere, and any change away from that objective is only likely to cause customer confusion.

### 3.9 Dialing Prefixes for Carrier Selection

As a result of the Modification of Final Judgment (MFJ), the GTE consent decree, and the implementation of access change plans in state as well as federal jurisdictions, many callers are required to select an IC for calls that cross LATA boundaries. ICs connect their facilities to Bell Operating Company (BOC) and many LEC networks using several different access arrangements. The most common access arrangements are Feature Group B (FGB) and Feature Group D (FGD).

FGB callers reach an IC's facility by dialing 950-XXXX. The XXXX digits (expanded from 0/1XXX effective April 1, 1993) in the 950 number identify the IC and are called the Carrier Identification Code (CIC). CICs are assigned by NANPA in accordance with industry-approved guidelines (*CIC Administrative Guidelines*, ICCF 92-0726-002).<sup>7</sup> When the call is "cut through," the IC switching equipment provides a second dial tone indicating that the caller must dial a Personal Identification Number (PIN) plus the number to be called.

FGD permits callers to *presubscribe* to or *select* a specific IC on a per-call basis. If the caller wants to use the presubscribed carrier, only the called number need be dialed. FGD also allows the caller to override presubscription on a per-call basis and choose an alternate IC by dialing 10XXX + 0/1 + 10 digits. The 10XXX dialing prefix is called the Carrier Access Code (CAC). (The last 3 digits of the 10XXX CAC are the CIC.)

FGB and FGD access are available for certain uses to entities other than ICs. Due to the popularity of these access arrangements, the supply of FGB CICs has required expansion and that of FGD is projected to exhaust in early 1995.

FGD CICs are planned to be expanded to the dialing pattern shown below:

101XXXX + 0/1 + 10 digits

Additional details of dialing procedures available for use with FGD are shown in Tables 3-8 through 3-10. Further information pertaining to FGB access can be found in *Feature Group B, FSD 20-24-0300*, TR-TSY-000698,<sup>8</sup> FGD access information can be found in *Compatibility Information for Feature Group D Switched Access Service*, TR-NPL-000258,<sup>9</sup> and *Expansion of Carrier Identification Code Capacity for Feature Group D (FGD)*, TR-NWT-001050.<sup>10</sup>

### 3.10 Operator Assistance

Callers reach the LEC operator by dialing 0 (zero). To reach the presubscribed interexchange operator carrier, 00 (zero zero) is dialed, where available. A presubscribed customer should also be able to dial 10XXX + 0 to reach an alternate IC operator facility. In nonequal-access end offices, 00 can be routed either to the LEC operator facility, to a single IC's operator facility, or it can be blocked.

### 3.11 International Direct Distance Dialing

There are three major types of carriers involved in international calling.

- *International Carriers (INCs)* transport the call between a United States gateway and a foreign country where the INC connects to the applicable foreign telephone entity.
- *Interexchange Carriers (ICs)* provide call transport from the originating LATA to the INC gateway office.
- *Interexchange/International Carriers (IC/INCs)* provide both domestic interLATA transport and international transport.

On most international calls, both ICs and INCs are involved, which implies that two carriers are selected by a single CAC.

- A single carrier (IC/INC) provides both interLATA and international transport and uses a single CAC that includes both.
- An IC and an INC, having separate CACs, can agree to handle each other's traffic. A customer placing an International Direct Distance Dialing (IDDD) call could use either carrier's CAC. The interLATA portion would be handled by the IC and the international portion would be handled by the INC.

An IDDD caller is not able to independently specify both an IC and an INC for an international call. Except in the case of a carrier that provides both functions, the caller will specify either the IC or INC of choice. The other carrier (INC or IC, respectively) involved will be the result of a prearranged business agreement.

When an international call is dialed by a customer in a national network, the local switching system must be able to recognize that it is receiving an international address. In the NANP, a local switching system with IDDD capability is alerted to the fact that an international number is being dialed by use of a special prefix code. The following dialing patterns are utilized for IDDD in the NANP.

For station-paid direct-dialed calls:	011 + country code + national number
For operator-assisted calls:	01 + country code + national number

The list of current country code assignments can be found in Section 1.10 of the *LERG*.<sup>11</sup>

### 3.12 0XX and 1XX Codes

Within the NANP there are two series of 3-digit codes — 0XX and 1XX — that are not used as NPA or Central Office codes but are used for various specialized purposes. End offices or their associated Centralized Automatic Message Accounting (CAMA) offices will not accept a 7-digit or 10-digit address having a 0XX or 1XX code in the NPA or Central Office code field. However, such codes are accepted and routed by switching systems when received via an intermachine trunk or a source authorized to generate them (for example, a testboard). In the past, 0XX codes were typically used as a pseudo-Central Office code to route special calls to a switching office that did not have a normal Central Office code assigned (for example, a toll office). These codes were also used to route special calls to a switching office termination that a LEC did not want dialed using a normal address. When 0XX codes serve a pseudo-Central Office code function, they are used in conjunction with an NPA code so most of the codes can be reused in each NPA.

By contrast, 1XX codes are frequently used as pseudo-NPA codes. For example, some codes in the form 18X are used to direct international calls to the proper gateway office.

Bellcore, in its role as NANP Administrator, does not administer or assign the uses of the 0XX or 1XX codes. The selection of the specific 0XX or 1XX code to be used for a routing or billing function is the responsibility of the carrier implementing its use. If the 0XX or 1XX code will be used to route calls between a LEC and an IC, the code selection should be made by mutual agreement to avoid code conflicts. The NANP Administrator will act as coordinator, if requested, in the selection of a 0XX or 1XX code that will be used in the networks of two or more ICs. Section 1.4 of the *LERG* lists the 1XX codes that have universal routing assignments.<sup>11</sup>

### 3.13 Special Characters (#) and (\*)

The advent of new services and special dialing procedures creates an increasing need to make use of the (#) and (\*) characters for special functions.

To minimize the amount of confusion experienced by callers using these characters, there is an effort to standardize their use. It is also important that consistent terminology be known and used when referring to these characters. The (#) and the (\*) should be called the number sign and the star, respectively. The terms number sign and star have been internationally agreed upon. Use of the term asterisk for (\*) and pound sign for (#) should *not* be used in documentation dealing with dialing procedures.

At present, the characters (#) and (\*) have the following general applications.

1. The first use of the number sign (#) is as an end-of-dialing or conclude the present action and proceed to the next action indicator. This end-of-dialing use exists today and avoids a timing period (for example, IDDD) using certain types of switching systems. The *conclude-and-proceed* use also occurs in some telephone credit card services where the customer wants to indicate that the present call is over and a new call is about to be placed (for example, sequence calling). The latter use is expected to become more common as services with extended dialing sequences become more prevalent.
2. The second use of the number sign (#) is as the first character when dialing a call that is a wideband or other data call requiring special treatment. In certain types of data calls, both an initial and concluding (#) may be required. Functionally, this is similar in many respects to the KP + (address) + ST format used by operators.
3. The first use of the star (\*) is as a prefix when dialing a Vertical Service Code (VSC) (for example, call forwarding) of the form \*XX. In this application, the (\*) indicates to the switching system that the digits following specify a certain desired feature/service. Section 3.14 discusses VSCs.
4. The second major use planned for the (\*) is not yet implemented. It is anticipated that new services will require customer dialing of various digit strings on a sequential basis in response to prompting. The (\*) is expected to provide an error-correcting function for such dialing sequences. Most caller-recognized dialing errors in existing services are corrected by the customer simply hanging up and starting over. That will not be appropriate in some future situations. The (\*) will allow the caller to *back up* to some preestablished point and redial only the segment in which an error was recognized.

Prefix 11 provides the same function for dial-pulse (rotary dial) telephones that (\*) does for DTMF (touch-tone) telephones.

### 3.14 Vertical Service Codes

Vertical Service Codes (VSCs) are customer-dialed codes in the \*XX dialing format for touch-tone phones and 11XX dialing format for rotary phones. They are used to provide customer access to features and services (for example, Call Forwarding, Automatic Callback, etc.) provided by network service providers such as LECs and ICs. For example, call forwarding is activated by dialing \*72 or 1172.

VSCs are assigned to features or services to enable consistent accessibility throughout the Public Switched Telephone Network (PSTN). The purpose of common/standard VSCs is to minimize customer confusion and provide a standard service access approach for features and services within:

1. Multiple individual networks (multi-network applications)
2. Across and/or among two or more networks on an internetwork basis (internetwork applications) where multiple networks must act upon a VSC in a consistent manner on a given call.

VSC assignments are to be made using the same VSC resource, but multi-networks and internetwork applications will be identified separately.

VSCs are assigned and administered by NANPA using industry-approved guidelines. ICCF 92-1127-005, *Vertical Service Codes Assignment Guidelines*, provides information on assignment principles and criteria, responsibilities of code applicants and code administrator, and code application procedures.<sup>12</sup>

Current VSC assignments can be found in Section 1.6 of the *LERG*.<sup>11</sup>

### 3.15 SS7 Point Codes

Signaling System 7 (SS7) point codes are unique numbers assigned to each SS7 network node that are the name and address of that node. The SS7 point code consists of three 8-bit binary octets, known as the Network ID, Cluster Code, and Cluster Member respectively. Each octet has possible assignment values of 00000000 to 11111111, translating to 0 to 255.

NANPA, using guidelines established by the Alliance for Telecommunications Industry Solutions (ATIS)\* Subcommittee T1S1.3, assigns the following:

1. To large networks, currently defined as those networks having at least 75 Signaling Points (SPs) initially and 150 in 5 years, and also having a Signaling Transfer Point (STP) or STP functionality, NANPA assigns the Network ID. The large network

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\* Formerly the Exchange Carriers Standards Association (ECSA).

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administrator assigns the Cluster Codes and Cluster Members to the SPs within the large network.

2. To small networks, currently defined as those networks having less than 75 SPs initially and less than 150 in years, and all having an STP or STP functionality, NANPA assigns the Network ID and Cluster Codes. The small network administrator assigns the Cluster Members to the SPs within the small network.
3. Those companies without STP functionality are grouped together and share Network ID and Cluster Codes. NANPA assigns the Network ID, Cluster Codes, and Cluster Members to the SPs.

### **3.16 Automatic Number Identification Digit Assignments**

Automatic Number Identification (ANI) "II" digits are two digits that are sent with the originating telephone number identifying the type of originating station (for example: Plain Old Telephone Service [POTS] [00], Hotel/Motel [06], etc.). Assignment of new ANI II digit pairs are made through industry consensus at ICCF. NANPA is responsible for tracking the assignments. Listings of ANI II digit pairs can be found in Section 1.8 of the *LERG*.<sup>11</sup>

**Table 3-6. Recommended Dialing Procedures for Locations with SXS Equipment\***

Type of Call	Without Interchangeable CO Codes			With Interchangeable CO Codes**		
	Pre- Fix	Area Code	CO Code Use	Pre- Fix	Area Code†	CO Code Use
<b>Local Direct-Dialed HNPA</b>	1+		NNX-XXXX R NNX-XXXX NR N 0/1 X + NNX-XXXX NR 1+ N 0/1 X + NNX-XXXX P	1+		NXX-XXXX R NXX-XXXX NR N 0/1 X + NXX-XXXX NR 1+ N 0/1 X + NXX-XXXX P
<b>FNPA (Protected Codes)</b>	1+		NNX-XXXX R NNX-XXXX NR N 0/1 X + NNX-XXXX NR 1+ N 0/1 X + NNX-XXXX P	1+		NXX-XXXX R NXX-XXXX NR N 0/1 X + NXX-XXXX NR 1+ N 0/1 X + NXX-XXXX P
<b>FNPA (Nonprotected Codes)</b>			N 0/1 X + NNX-XXXX NR 1+ N 0/1 X + NNX-XXXX R			N 0/1 X + NXX-XXXX NR 1+ N 0/1 X + NXX-XXXX R
<b>Toll Direct-Dialed HNPA</b>	1+		NNX-XXXX R NNX-XXXX NR N 0/1 X + NNX-XXXX NR 1+ N 0/1 X + NNX-XXXX P	1+		NXX-XXXX NR NXX-XXXX NR N 0/1 X + NXX-XXXX NR 1+ N 0/1 X + NXX-XXXX R
<b>FNPA</b>			N 0/1 X + NNX-XXXX NR 1+ N 0/1 X + NNX-XXXX R			N 0/1 X + NXX-XXXX NR 1+ N 0/1 X + NXX-XXXX R
<b>All Operator-Assisted HNPA</b>	0+		NNX-XXXX R 0+ N 0/1 X + NNX-XXXX P	0+		NXX-XXXX NR 0+ N 0/1 X + NXX-XXXX R
<b>FNPA (Protected Codes)</b>	0+		NNX-XXXX R 0+ N 0/1 X + NNX-XXXX P	0+		NXX-XXXX NR 0+ N 0/1 X + NXX-XXXX R
<b>FNPA (Nonprotected Codes)</b>	0+		N 0/1 X + NNX-XXXX R	0+		N 0/1 X + NXX-XXXX R

**Legend:**

0/1 = Digit 0 or 1	P = Permissive procedure permitted in addition to recommended procedure
CO = Central Office	R = Recommended procedure
FNPA = Foreign Numbering Plan Area	SXS = Step-by-Step
HNPA = Home Numbering Plan Area	X = Any digit 0 through 9.
N = Any digit 2 through 9	
NR = Procedure not recommended	

- \* In locations where FGD has been implemented, if the caller is not presubscribed to an IC, interLATA calls require use of a CAC currently in the form 10XXX preceding the dialing format shown in this table.
- \*\* Unless timing is used, in addition to being required in those NPAs using interchangeable Central Office codes, these procedures are the recommended objectives for all areas. They will also be required (unless timing is used) in all areas when FNPA codes are implemented in the NANP.
- † These dialing procedures will also apply for FNPA codes. In this case, the NPA code format also will become NXX (versus N 0/1 X).

Table 3-7. Recommended Dialing Procedures for Locations without SXS Equipment\*

Type of Call	Without Interchangeable CO Codes			With Interchangeable CO Codes**		
	Pre- Area Fix Code	CO Code	Use	Pre- Area Fix Code†	CO Code	Use
<i>Local Direct</i>		NNX-XXXX R			NXX-XXXX RT	
<i>Dialed</i>	1+	NNX-XXXX NR		1+	NXX-XXXX NR	
<i>HNPA</i>	N 0/1 X +	NNX-XXXX NR		N 0/1 X +	NXX-XXXX NR	
	1+ N 0/1 X +	NNX-XXXX P		1+ N 0/1 X +	NXX-XXXX P	
<i>FNPA (Protected Codes)</i>		NNX-XXXX R			NXX-XXXX R	
	1+	NNX-XXXX NR		1+	NXX-XXXX NR	
	N 0/1 X +	NNX-XXXX NR		N 0/1 X +	NXX-XXXX NR	
	1+ N 0/1 X +	NNX-XXXX P		1+ N 0/1 X +	NXX-XXXX P	
<i>FNPA (Nonprotected Codes)</i>		N 0/1 X + NNX-XXXX NR			N 0/1 X + NXX-XXXX NR	
	1+ N 0/1 X +	NNX-XXXX R		1+ N 0/1 X +	NXX-XXXX R‡	
<i>Direct</i>		NNX-XXXX R			NXX-XXXX R‡	
<i>Dialed</i>	1+	NNX-XXXX NR		1+	NXX-XXXX NR	
<i>HNPA</i>	N 0/1 X +	NNX-XXXX NR		N 0/1 X +	NXX-XXXX NR	
	1+ N 0/1 X +	NNX-XXXX P		1+ N 0/1 X +	NXX-XXXX P	
<i>FNPA</i>		N 0/1 X + NNX-XXXX R			N 0/1 X + NXX-XXXX NR	
	1+ N 0/1 X +	NNX-XXXX P		1+ N 0/1 X +	NXX-XXXX R‡	
<i>All-Operator Assisted</i>	0+	NNX-XXXX R		0+	NXX-XXXX NR	
<i>HNPA</i>	0+ N 0/1 X +	NNX-XXXX P		0+ N 0/1 X +	NXX-XXXX R‡	
<i>FNPA (Protected Codes)</i>	0+	NNX-XXXX R		0+	NXX-XXXX NR	
	0+ N 0/1 X +	NNX-XXXX P		0+ N 0/1 X +	NXX-XXXX R	
<i>FNPA (Nonprotected Codes)</i>	0+ N 0/1 X +	NNX-XXXX R		0+ N 0/1 X +	NXX-XXXX R‡	

Legend:

0/1 = Digit 0 or 1  
CO = Central Office  
FNPA = Foreign Numbering Plan Area  
HNPA = Home Numbering Plan Area  
N = Any digit 2 through 9  
NR = Procedure not recommended  
P = Permissive procedure  
be permitted in addition to recommended procedure  
R = Recommended procedure  
SXS = Step-by-Step  
X = Any digit 0 through 9

- \* In locations where PGD has been implemented, if the caller is not prescribed to an IC, interLATA calls require use of a CAC currently in the form 10XXXX preceding the dialing format shown in this table.
- \*\* Unless timing is used, in addition to being required in those NPAs using interchangeable Central Office codes, these procedures are the recommended objectives for all areas. They will also be required (unless timing is used) in all areas when FNPA codes are implemented in the NANP.
- † These dialing procedures will also apply for FNPA codes. In this case, the FNPA code format also will become NXX (versus N 0/1 X).
- ‡ These are the recommended long-term procedures to apply after SXS equipment and protected codes become obsolete.



**Table 3-6. Recommended Dialing Procedure for Directory Assistance Under Feature Group D**

Type of Call	Dialing Procedure	Operator Reached
<b>IntraLATA</b>		
HNPA*	411 or 555-1212	LEC
FNPA	1 + NPA-555-1212	LEC
<u>Current</u>		
HNPA**	10XXX-555-1212	IntraLATA Carrier
FNPA**	10XXX-1+NPA-555-1212	IntraLATA Carrier
<u>Planned</u>		
HNPA**	101XXXX-555-1212	IntraLATA Carrier
FNPA**	101XXXX-1+NPA-555-1212	IntraLATA Carrier
<b>InterLATA</b>		
HNPA*	555-1212	LEC
FNPA	1 + NPA-555-1212	IC†
<u>Current</u>		
HNPA	10XXX-555-1212	IC†
FNPA	10XXX-1+NPA-555-1212	IC†
<u>Planned</u>		
HNPA	101XXXX-555-1212	IC†
FNPA	101XXXX-1+NPA-555-1212	IC†

**Legend:**

FNPA = Foreign Numbering Plan Area  
 HNPA = Home Numbering Plan Area  
 IC = Interexchange Carrier  
 LATA = Local Access and Transport Area  
 LEC = Local Exchange Carrier  
 NPA = Numbering Plan Area

- \* Use of the prefix 1 is acceptable in areas where CAMA access is required.
- \*\* Only applies in those areas where intraLATA competition is allowed.
- † Presubscription applies to interLATA directory assistance calls. The call will be handed off to the IC, but the IC business arrangement with a LEC to provide directory assistance may result in reaching a LEC operator.

**Table 3-9. Treatment of 0 And 00 Dialed Calls from Equal-Access End Offices**

Dialing Format	Suggested Disposition Equal-Access End Office
0	LEC
00	IC*
Current 10XXX + 0	IC
Planned 101XXXX + 0	IC
Current 10XXX + 00	IC**
Planned 101XXXX + 00	IC**
Current 10XXX + 0+ 7/10D	IntraLATA - IC, if permitted†
Planned 101XXXX + 0+ 7/10D	IntraLATA - IC, if permitted†
0 + 7/10D	IntraLATA - LEC‡ IntraLATA - IC‡

**Legend:**

IC = Interexchange Carrier  
LATA = Local Access and Transport Area  
LEC = Local Exchange Carrier  
X = Any digit 0 through 9  
D = Digits

- \* Assumes subscriber is presubscribed.
- \*\* While this is not an NANP dialing standard (to avoid customer confusion) 10XXX + 00 dialed calls should be processed and routed to the IC operator facility.
- † Because regulatory treatment of IntraLATA competition varies widely, this section does not specifically address dialed 0+ 7/10D where such competition is allowed.
- ‡ 00 + 7/10D and 10XXX + 00 + 7/10D dialed calls are not defined in the NANP. Upon completion of dialing 00, the call would generally be routed to the IC operator facility, and subsequent digits would be acknowledged. This may only apply to subscribers with DTMF telephones; calls of this type generated by rotary dial customers may not be processed.

Table 3-10. Dialing Procedures Available with Feature Group D

Dialing Format	Destination
10XXX + (1) + (NPA) + NXX + XXXX*	Carrier specified by 10XXX.*
10XXX + 011 + CC + NN + (#)**	Presubscribed carrier.
011 + CC + NN + (#)**	Presubscribed carrier operator function.
01 + CC + NN + (#)**	Presubscribed carrier operator function.
(1) + (NPA) + NXX + XXXX (InterLATA)	Presubscribed carrier.
(1) + (NPA) + NXX + XXXX (IntraLATA)	LBC
(0) + (NPA) + NXX + XXXX (InterLATA)	Presubscribed carrier operator function.
(0) + (NPA) + NXX + XXXX (IntraLATA)	LBC operator function.
10XXX + 0 + (NPA) + NXX + XXXX	Operator function of carrier specified by 10XXX.
10XXX + 01 + CC + NN + (#)†	LBC operator.
0	Presubscribed carrier operator function.
00	Operator of carrier specified by 10XXX.
10XXX + 0	Carrier determined by 6-digit or 10-digit translation of SAC + NXX.
1 + SAC + NXX + XXXX	Carrier specified by 10XXX.
10XXX + (0/1) + SAC + NXX + XXXX	Carrier specified by 10XXX.
10XXX + #‡	Carrier specified by 10XXX.

Legend:

- 0/1 = Digit 0 or 1
- CC = Country Code
- N = Any digit 2 through 9
- NPA = Numbering Plan Area
- X = Any digit 0 through 9

- \* Conversion planned to 10XXXXX dialing prefix (XXX expansion to XXXX CIC) in 1995.
- \*\* ( ) indicates optional dialing digits.
- † (#) indicates that dialing the character # (on DTMF touch-tone telephones) at the end of an international address is desirable but not required. If used, it eliminates the need for timing in some cases.
- ‡ # indicates that the character # as the end of a dialed CAC is required.

Table 3-11. NPA Codes in Alphabetical Order (as of February 1994)

STATE/PROVINCE OR OTHER SPECIAL USE	AREA CODE	STATE/PROVINCE OR OTHER SPECIAL USE	AREA CODE	STATE/PROVINCE OR OTHER SPECIAL USE	AREA CODE
800 Service	800	Iowa	515	Nova Scotia	902
900 Service	900	Iowa	712	Ohio	216
Alabama	205	Kansas	316	Ohio	419
Alabama	334	Kansas	913	Ohio	513
Alaska	907	Kentucky	502	Ohio	614
Alaska	408	Kentucky	606	Oklahoma	405
Arizona	520	Louisiana	318	Oklahoma	918
Arizona	602	Louisiana	504	Ontario	416
Arkansas	501	Maine	207	Ontario	519
Caribbean Islands	809	Manitoba	204	Ontario	613
British Columbia	604	Maryland	301	Ontario	705
California	209	Maryland	410	Ontario	807
California	213	Massachusetts	413	Ontario	905
California	310	Massachusetts	508	Oregon	503
California	408	Massachusetts	617	Pennsylvania	215
California	415	Michigan	313	Pennsylvania	412
California	510	Michigan	517	Pennsylvania	610
California	619	Michigan	616	Pennsylvania	717
California	707	Michigan	810	Pennsylvania	814
California	714	Michigan	906	Quebec	418
California	805	Minnesota	218	Quebec	514
California	818	Minnesota	507	Quebec	819
California	909	Minnesota	612	Rhode Island	401
California	916	Mississippi	601	Saskatchewan	306
Canada (Services)	600	Missouri	314	South Carolina	803
Colorado	303	Missouri	417	South Dakota	605
Colorado	719	Missouri	816	Tennessee	615
Connecticut	203	Montana	406	Tennessee	901
Delaware	302	Nebraska	308	Texas	210
Dist. of Columbia	202	Nebraska	402	Texas	214
Florida	305	Nevada	702	Texas	409
Florida	407	New Brunswick	506	Texas	512
Florida	813	New Hampshire	603	Texas	713
Florida	904	New Jersey	201	Texas	806
Georgia	404	New Jersey	609	Texas	817
Georgia	706	New Jersey	908	Texas	908
Georgia	912	New Mexico	505	Texas	915
Hawaii	808	New York	212	U.S. Government	710
IC Services	700	New York	315	Utah	801
International Inbound	436	New York	516	Vermont	802
Idaho	208	New York	518	Virginia	703
Illinois	217	New York	607	Virginia	804
Illinois	309	New York	716	Washington	206
Illinois	312	New York	718	Washington	360
Illinois	618	New York	914	Washington	509
Illinois	708	New York	917	West Virginia	304
Illinois	815	Newfoundland	709	Wisconsin	414
Indiana	219	North Carolina	704	Wisconsin	608
Indiana	317	North Carolina	910	Wisconsin	715
Indiana	812	North Carolina	919	Wyoming	307
Iowa	319	North Dakota	701		

Table 3-12 NPA Codes in Numerical Order (as of February 1994)

AREA OR OTHER CODE	STATE/PROVINCE OR OTHER SPECIAL USE	AREA CODE	STATE/PROVINCE OR OTHER SPECIAL USE	AREA CODE	STATE/PROVINCE OR OTHER SPECIAL USE
201	New Jersey	415	California	707	California
202	Dist. of Columbia	416	Ontario	708	Illinois
203	Connecticut	417	Massachusetts	709	Newfoundland
204	Maine	418	Quebec	710	U.S. Government
205	Alabama	419	Ohio	712	Iowa
206	Washington	456	International Inbound	713	Texas
207	Michigan	501	Arkansas	714	California
208	Idaho	502	Kentucky	715	Wisconsin
209	California	503	Oregon	716	New York
210	Texas	504	Louisiana	717	Pennsylvania
212	New York	505	New Mexico	718	New York
213	California	506	New Brunswick	719	Colorado
214	Texas	507	Minnesota	800	800 Service
215	Pennsylvania	508	Massachusetts	801	Utah
216	Ohio	509	Washington	802	Vermont
217	Illinois	510	California	803	South Carolina
218	Minnesota	512	Texas	804	Virginia
219	Indiana	513	Ohio	805	California
301	Maryland	514	Quebec	806	Texas
302	Delaware	515	Iowa	807	Ontario
303	Colorado	516	New York	808	Hawaii
304	West Virginia	517	Michigan	809	Cook County, Illinois
305	Florida	518	New York	810	Michigan
306	South Carolina	519	Ontario	812	Indiana
307	Wyoming	520	Arizona	813	Florida
308	Nebraska	600	Canada (Services)	814	Pennsylvania
309	Illinois	601	Massachusetts	815	Illinois
310	California	602	Arkansas	816	Massachusetts
312	Illinois	603	New Hampshire	817	Texas
313	Michigan	604	British Columbia	818	California
314	Minnesota	605	South Dakota	819	Quebec
315	New York	606	Kentucky	900	900 Service
316	Kansas	607	New York	901	Tennessee
317	Indiana	608	Wisconsin	902	New South
318	Louisiana	609	New Jersey	903	Texas
319	Iowa	610	Pennsylvania	904	Florida
334	Alabama	612	Minnesota	905	Ontario
360	Washington	613	Ontario	906	Michigan
401	Rhode Island	614	Ohio	907	Alaska
402	Nebraska	615	Tennessee	908	New Jersey
403	Alabama	616	Michigan	909	California
404	Georgia	617	Massachusetts	910	North Carolina
405	Oklahoma	618	Illinois	912	Georgia
406	Minnesota	619	California	913	Kansas
407	Florida	700	IC Services	914	New York
408	California	701	North Dakota	915	Texas
409	Texas	702	Nevada	916	California
410	Maryland	703	Virginia	917	New York
412	Pennsylvania	704	North Carolina	918	Oklahoma
413	Massachusetts	705	Ontario	919	North Carolina
414	Wisconsin	706	Georgia		



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INTERNATIONAL TELECOMMUNICATION UNION

6

**CCITT**

**E.164**

THE INTERNATIONAL  
TELEGRAPH AND TELEPHONE  
CONSULTATIVE COMMITTEE

**TELEPHONE NETWORK AND ISDN  
OPERATION, NUMBERING, ROUTING  
AND MOBILE SERVICE**

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**NUMBERING PLAN FOR THE ISDN ERA**

**Recommendation E.164**

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Geneva, 1991

In the case of a country with a one-digit country code, not more than the initial three digits of the national (significant) number need be analysed for routing and charging.

3.2.3 In the case where an integrated numbering plan covers a group of countries, the digit analysis specified in § 3.2.2 should also determine the country of destination.

#### 3.2.4 *Number analysis post-time T*

In order to determine:

- the country <sup>3)</sup> of destination;
- the most appropriate network routing;
- the proper charging,

the originating country <sup>3)</sup> must analyse a number of digits of the international number. The national destination code (NDC) increases the potential requirement for number analysis because it provides for a combination of either a trunk code (TC) and/or a network identification function. Careful consideration should be given to the preparation of the national destination code (NDC) assignments <sup>4)</sup>.

On international calls the number analysis performed at the originating country <sup>3)</sup> need not be more than the country code and:

- three digits of the N(S)N in the case of a country with a three-digit country code;
- four digits of the N(S)N in the case of a country with a two-digit country code;
- five digits of the N(S)N in the case of a country with a one-digit country code.

(Translation beyond this requirement could be arranged by bilateral agreement if required, e.g. countries assigned a one-digit country code may require analysis of up to six digits beyond the country code.)

## 4 Limitation of the number of digits to be dialled by subscribers

### 4.1 *International number*

The CCITT recommended in 1964 that the number of digits to be dialled by subscribers in the automatic international service should not be more than 12 (excluding the international prefix). It is emphasized that this is the maximum number of digits until subsequent ISDN provisions involving time T (see Recommendation E.165) apply. Administrations are invited to do their utmost to limit the digits to be dialled to the degree possible consistent with the service needs.

### 4.2 *National (significant) number – pre-time T definition*

The CCITT,

Noting

(a) that the international number (excluding the international prefix) consists of the country code followed by the national (significant) number;

(b) that the smallest possible number of digits to be dialled in the automatic international service is achieved by limiting the number of digits of the country code and/or of the national (significant) number;

(c) that in some countries where telephony is already developed to an advanced stage, the national numbering plans in force enable the number of digits of the international number to be limited to less than 12;

(d) that some other countries which drew up their national numbering plans some time before 1964 have taken steps to ensure that the number of digits of the international number will not exceed 12 and may even be less.

<sup>3)</sup> Country or geographical area.

<sup>4)</sup> The use of NDC is nationally optional, see § 4.4.

*recommends*

that the number of digits of the national (significant) number should be equal to a maximum of  $12 - n$ , where  $n$  is the number of digits of the country code.

*Digit capacity of international registers – pre-time T*

The CCITT considers it advisable to recommend that the digit capacity of registers dealing with international traffic should allow for future conditions that may arise, but not possible to specify at the present time. In this regard, registers dealing with international traffic should have a digit capacity, or a capacity that can be expanded, to cater for more than the maximum 12 digit international number envisaged at present. The increase in the number of digits above 12 is left as a matter of decision to be taken by individual Administrations. However, for new applications a minimum digit capacity of 15 digits is recommended. Administrations are recommended, when making such a decision, to take account of the new applications likely to be introduced in the international service, and which are now being studied by the CCITT.

**4.4 Structure of the international ISDN number**

The international ISDN number is composed of a variable length of decimal digits arranged in specific code fields. The international ISDN number code fields are the country code (CC) and the national (significant) number.

The country code (CC) is used to select the destination country <sup>5)</sup> and varies in length as outlined in § 5.2.

The national (significant) number N(SN) is used to select the destination subscriber. In selecting the destination subscriber, however, it may be necessary to select a destination network. To accomplish this selection, the national (significant) number N(SN) code field comprises a national destination code (NDC) <sup>6)</sup> followed by the subscriber's number (SN). The NDC and SN may be inseparably connected in some national applications to form a single composite dialling sequence.

The NDC field will be variable in length depending upon the requirements of the destination country. Each NDC may have one of the following structures:

- a) a destination network (DN) code, which can be used to select a destination network serving the destination subscribers;
- b) a trunk code (TC), the format of which is defined in Recommendation E.160;
- c) any combination of destination network (DN) code and trunk code (TC).

The NDCs of an Administration may consist of any of the above structures.

*Note* – The sequences DN-TC and TC-DN are a national matter (see Annex D).

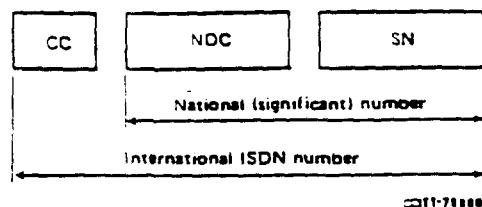
The subscriber's number (SN) varies in length depending on the requirements of the destination country <sup>5)</sup> and is in accordance with Recommendation E.160.

Figure 1/E.164 shows the number structure.

Where appropriate, identification of an ISDN within the destination country <sup>5)</sup> shall be through the use of a national destination code (NDC) incorporated in the ISDN number.

<sup>5)</sup> Country or geographical area.

<sup>6)</sup> See definitions in Recommendation E.160.



CC Country code as defined in 5.5.2  
 NDC National destination code  
 SN Subscriber number

*Note* – National and international prefixes are excluded as they are not considered to be part of the international ISDN number.

FIGURE 1/E.164

Number structure

#### 4.5 Number length – post-time T

The international number may be of variable length. The maximum number length shall be 15 digits.

The length does not include prefixes, language digit, address delimiters (e.g. end of pulsing signals, etc.) as these items are not considered as part of the international ISDN number.

*Note* – The limit of 15 digits specified above applies exclusively to the international number. With regard to the capacity to be provided at the exchange, some Administrations may wish to exceed the above maximum number length (e.g. the use of prefixes for network and service selection). The decision on storage capacity is left as a matter to be decided by individual Administrations.

### 5 Prefixes and codes

#### 5.1 Applications

5.1.1 The use of prefixes shall be in accordance with Recommendations E.160 and E.166. Where necessary, prefixes can also be used for network and service selection.

5.1.2 The short-term use of digit "0" (zero) as an escape code for numbering plan interworking pre-time T is described in Recommendation E.166.

5.1.3 It is recommended by the CCITT that the Administrations of countries that have not yet introduced automatic international operation, or Administrations that are, for various reasons, revising their numbering plans adopt an international prefix <sup>7)</sup> (a code for access to the international automatic network) composed of the two digits 00.

<sup>7)</sup> See definitions in Recommendations E.160.

## 5.2 *Country code* <sup>8)</sup>

### 5.2.1 *Country codes will be used:*

- in semi-automatic operation, to route calls to the required country when the calls are transit calls or when, on the outgoing positions, there is common dialling access to all the outgoing routes;
- in automatic operation.

5.2.2 A list of country codes was prepared by the CCITT within the framework of a world-wide automatic telephone numbering plan.

This list was set up according to the following principles:

- a) the number of digits of the country code is one, two or three according to the foreseeable telephonic and demographic development of the country concerned;
- b) the nine digits from one to nine have been allocated as the country code or as the first digit of the country code. These digits define world numbering zones;
- c) in the case of Europe, owing to the large number of countries requiring two-digit codes, the two digits 3 and 4 have been allocated as the first digit of the country codes.

5.2.3 The list of country codes already assigned is given in Annex A.

## 5.3 *Assignment of country codes*

5.3.1 The existing world numbering plan should be maintained and codes presently assigned should not be changed, unless consolidation of an existing numbered area yields an advantage in terms of code usage.

5.3.2 All spare country codes will be assigned on a three-digit basis, as detailed in Annex B. The list of spare country codes for the international semiautomatic and automatic service is given in Annex C.

5.3.3 In the case where all the country codes in a world numbering zone have been assigned and an additional code is required in that zone, a spare country code from another world numbering zone can be used in accordance with the following rules.

5.3.3.1 Preference should be given to the assignment of a spare country code from an adjacent world numbering zone.

5.3.3.2 If spare codes are not available from an adjacent world numbering zone, assignments will be made from the zones with the most spare codes.

## 5.4 *Codes for new international services*

The introduction of some international services requires the allocation of a country code. In such cases, the assignment of a country code will be determined by the rules detailed in Annex B.

## 5.5 *Trunk prefix* <sup>9)</sup>

5.5.1 The national (significant) number (see definition 8 of Recommendation E.160) does not include the trunk prefix. Accordingly, in the international service, the trunk prefix of the country of destination must not be dialled.

It should be noted that, in some countries, it is customary to consider for national purposes that the trunk prefix is included in the national number (which is then not the national (significant) number). A careful distinction must therefore be made between such national definition or practice and the CCITT definition, which is internationally valid. In order to avoid misunderstanding, the CCITT definition includes the word "significant" between brackets, reading as follows: "national (significant) number".

<sup>8)</sup> See definitions in Recommendations E.160.

<sup>9)</sup> A "country code" may be assigned either to an individual country or to a geographical area.

5.5.2 It is recommended by the CCITT that the Administrations of countries that have not yet adopted a trunk prefix for access to their national automatic trunk network adopt a prefix composed of a single digit, preferably 0. If, irrespective of what digit is adopted as a trunk prefix, this digit should be precluded from being used also as a first digit of the trunk codes.

The reasons for this Recommendation are:

- to provide the maximum degree of standardization of the trunk prefixes used in different countries, so that dialling is made as easy as possible for a person travelling from one country to another;
- to minimize the number of digits to be dialled in the automatic national service;
- to reduce user problems which arise because of the requirement, in automatic international operation, that the trunk prefix of the country of destination must not be dialled.

5.5.3 In the automatic international service, following the international prefix and country code of the called country, the caller should dial the national (significant) number of the called subscriber (i.e. without dialling the trunk prefix).

5.5.4 The use and printing of symbols and separators in national and international telephone numbers are detailed in Recommendation E.123.

## 6 ISDN numbering plan principles

### 6.1 General

The ISDN numbering and addressing principles are described in Recommendation I.330. The ISDN numbering plan will be based on and evolve from the existing numbering plans applicable to national and international public telephone networks.

In view of the evolutionary nature of ISDN, the international numbering plan should provide for substantial capacity to accommodate future network requirements.

Where multiple destinations (i.e. RPOAs/networks) serve the called party's geographical area, the national ISDN numbering arrangement in the country<sup>10)</sup> of destination shall provide for discrimination between these RPOAs/networks. The procedure for discrimination between multiple transit RPOAs/networks is not considered to be a destination address requirement and shall therefore be excluded from the ISDN numbering arrangements.

Before the ISDN numbering arrangement attains global penetration, it must allow for interworking between the ISDN and other public networks. Such arrangements are discussed in Recommendation E.166. Interworking with private networks shall also be taken into account. The definition of private networks and the methods of interworking are for further study and will be covered in future E-Series Recommendations.

The ten-digit decimal character set 0-9 is used throughout the ISDN numbering plan format including subscriber number, national (significant) number and the country code.

Prefixes and other information concerned with identifying selection procedures or Network Service parameters (such as Quality of Service or transit delay) do not form part of the ISDN number.

The ISDN numbering plan shall include an unambiguous identification of a particular country<sup>10)</sup>. In addition, the ISDN number will identify networks and/or ISDNs within these countries<sup>10)</sup>, if required. In doing so, it shall retain the integrity of the telephone country code as defined in Recommendation E.160 and in § 5.2 of this Recommendation.

<sup>10)</sup> Country or geographical area.



## 7 Numbering allocation principles

The assignment of country codes is administered by the CCITT, while NSN (NDC plus SN) code assignments are a national responsibility.

ISDN number assignments may be allocated from the range of numbers available in the local ISDN exchange. These will be assigned to customers who subscribe only to the telephone service, customers with one or more data services and customers with a mixture of telephony and data services.

Subscribers equipped with basic access (the definition of ISDN basic access is given in the I-Series Recommendations) should ideally be allocated one unique number.

## 8 Network Identification

In countries <sup>11)</sup> served by more than one ISDN and/or public switched telephone network (PSTN) the network identification of each is a national matter.

Network identification within the national (significant) number shall be such that:

- in a country <sup>11)</sup> all destination ISDN and PSTN networks shall operate under a single country code;
- the international number maximum length of 15 digits shall not be exceeded, nor shall it be necessary for the number of digits for number analysis to exceed that specified in § 3.2.4;
- provision of network identification is not mandatory for countries using a single integrated numbering plan arrangement for their ISDNs and PSTNs.

## 9 Service Identification

The ISDN number by itself will not identify the particular nature of the service, type of connection or quality of service required. An indication of parameters describing the service required by the calling terminal will be included in a service identifier in the signalling information. This service identifier is not considered to be part of the numbering plan. For example, for ISDN calls, in addition to a number and possible prefix, there is a requirement to provide a choice of bearer capability in the signalling protocol.

## 10 Calling/connected line identity

Calling/connected line identity (CLI/COLI) is address information which is passed across the network to provide supplementary services such as calling (or connected) line identification presentation. The format of the CLI and COLI for international calls should be the full international number, i.e. country code (CC), national destination code (NDC) and subscriber number (SN). No other information, such as prefixes or symbols (e.g. "+"), should be included, although a sub-address may be associated with the CLI/COLI. When implemented the NPI (numbering plan identifier) TON (type of number) mechanism should define the numbering status of the calling/connected line.

## 11 Dialling procedures

The subscriber dialling procedures for local, national and international calls shall be in accordance with § 5.5. However, subscribers' control procedures for supplementary services will be as defined in Recommendation E.131 or in separate Recommendations for each service <sup>12)</sup>.

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<sup>11)</sup> Country or geographical area.

<sup>12)</sup> If approved, other references may be cited here.